

CLAIMS

1. An extendable bumper system for a vehicle, the extendable bumper system comprising:

a bumper structure;

a laterally extending bumper segment slideably located within the bumper structure; and

an actuator in operable communication between the bumper structure and the laterally extending bumper segment.

2. The extendable bumper system of claim 1, wherein the actuator is a motor actuator.

3. The extendable bumper system of claim 1, wherein the actuator is a hydraulic actuator.

4. The extendable bumper system of claim 1, wherein the actuator is a pyrotechnic actuator.

5. The extendable bumper system of claim 1, wherein the actuator is a combination of a motor actuator, a hydraulic actuator, and a pyrotechnic actuator.

6. The extendable bumper system of claim 1 further comprising:

a sensor in operable communication with the actuator and configured to determine the vehicle's status and to trigger actuation of the actuator based on the vehicle's status.

7. The extendable bumper system of claim 1 further comprising:

a locking mechanism configured to lock the laterally extending bumper segment.

8. The extendable bumper system of claim 3, wherein the locking mechanism is further configured to lock the laterally extending bumper segment in an extended position prior to and during an event.

9. The extendable bumper system of claim 3, wherein the locking mechanism is further configured to lock the laterally extending bumper segment when vehicle speed exceeds a threshold.

10. The extendable bumper system of claim 1 further comprising:
at least one longitudinal bumper rail located on the vehicle;
at least one longitudinally extending bumper segment in slideably operable communication with said longitudinal bumper rail and in operable communication with the bumper structure; and
and an actuator in operable communication with the vehicle and in operable communication with the longitudinally extending bumper segment and configured to longitudinally extend the bumper structure.

11. An extendable bumper system for a modular vehicle, the extendable bumper system comprising:
a bumper structure located on a moveable platform;
a laterally extending bumper segment slideably located within the bumper structure; and
a lateral bumper rail located on a body pod and configured to receive the laterally extending bumper segment.

12. The extendable bumper system of claim 11, further comprising:
a mechanism for manually extending the bumper segment into the lateral bumper rail.

13. The extendable bumper system of claim 11, further comprising:
an actuator configured to extend the bumper segment into the lateral bumper rail.

14. The extendable bumper system of claim 13, further comprising:
a sensor in operable communication with the actuator and configured to determine the vehicle's status and to trigger actuation of the actuator based on the vehicle's status.

15. The extendable bumper system of claim 13, wherein the actuator is a motor actuator.

16. The extendable bumper system of claim 13, wherein the actuator is a hydraulic actuator.

17. The extendable bumper system of claim 13, wherein the actuator is a pyrotechnic actuator.

18. The extendable bumper system of claim 13, wherein the actuator is a combination of a motor actuator, a hydraulic actuator, and a pyrotechnic actuator.